

By: Tim Mearig**Date:** July 12, 2005**Phone:** 465-6906**File:** History & Overview**For:** Bond Reimbursement and Grant
Review Committee**Subject:** EED Space Guidelines

BRIEFING PAPER

Background

In 2003, the department was contacted about contributing an article to an issue of an education journal focusing on the role of state departments of education in school facilities. Since Alaska has a long history of intimate state involvement in school funding both in school operations and in school construction it seemed appropriate. In fact, Alaska has become somewhat of a front-runner. Its policies and practices for balancing state involvement and local control are generating interest and are receiving significant scrutiny. The remainder of this paper covers the essential elements of the article in order to provide the committee an overview of state involvement in space guidelines.

Discussion

One of the first questions to deal with in establishing a resource allocation tool is which allotment to regulate. Since the resource being allocated in this discussion is primarily dollars, it might seem intuitive to establish guidelines regarding the allowable cost per square foot for schools. However, recent construction costs for schools in Alaska have ranged from \$141/sf for a suburban elementary to \$338/sf for a rural K-12 school. This range illustrates the difficulty of allocating school construction resources on a cost per square foot basis. Differing climatic conditions and their impact on building systems, difficulties in transportation and mobilization and varying needs to import skilled labor are just some of the variables that would have to be weighed in establishing a cost-based allocation tool. For this reason, Alaska allocates a resource more common to all schools and school types—the amount of space needed to provide for delivery of a quality educational program.

The second question to deal with in an allocation tool is how to find the most workable level at which to make the allocation or set of allocations. It's really a question as to how much involvement or how much detail the state needs to establish in order to see that the allocation is being used as intended. It is at this point that Alaska establishes a strong local-control component. The state's allocation of space is established at the gross-square-feet-per-student level versus an allocation of square feet per program area of a school. This offers great flexibility to local districts.

Having established these two mechanisms of Alaska's current structure: a space-based versus a cost-based allocation and an allocation per student versus many allocations per education program area, let's take a brief look at the history of allowable space guidelines in the state.



The record of formal space guidelines for schools in Alaska begins in the mid '70s about 15 years after statehood. Prior to that time, in territorial days and in the early years of statehood, a formal program of statewide school construction aid had not been established. By 1970, a program to provide partial reimbursement of school construction debt issued by municipal districts was initiated. State funding for schools in unorganized areas of the state was handled through designated appropriations of the legislature. Often, federal funding was also involved.

In 1974, the state began to examine the sizes and types of educational spaces needed to house various numbers of students based on curriculum delivery and graduation requirements.¹ This effort accelerated when in 1975 a suit was brought against the state seeking equal access to all grades of K-12 education for rural areas of the state. The Tobeluk vs. Lind consent decree included a commitment by the state to provide a secondary (i.e., 9-12) program in every community of the state in which an elementary school was established if it was the desire of the community. Finally, in 1978, the Department of Education published a series of guidelines for small high schools and small elementary schools and established allowable square footages for elementary, secondary and combined elementary-secondary schools of various enrollment groupings. Each population range was given a minimum, optimal and maximum number. The guidelines came under immediate criticism contending a lack of adequacy for storage needs in rural schools many of which received annual deliveries of curriculum supplies and food. A yearlong review by an independent committee occurred in 1981 which resulted in revised standards being codified in 1983. An excerpt from this document for the population ranges 81-99 and 400-499 is shown in Table 1. For school populations greater than 500, the maximum allowed became 100sf/student for elementary and 150sf/student for secondary.

School	Enrollment	
	81-99	400-499
Elementary (min. GSF)	9,200	34,900
Elementary (opt. GSF)	11,300	42,900
Elementary (max. GSF)	12,400	50,000
<i>Former guideline max.</i>	<i>9,750</i>	<i>49,900</i>
Secondary (min. GSF)	15,200	72,500
Secondary (opt. GSF)	18,400	75,000
Secondary (max. GSF)	20,300	80,000
<i>Former guideline max.</i>	<i>16,125</i>	<i>74,850</i>
Combined (min. GSF)	16,500	74,000
Combined (opt. GSF)	20,000	80,000
Combined (max. GSF)	22,500	82,500
<i>Former guideline max.</i>	<i>21,250</i>	<i>74,850</i>



The 1983 space guidelines stood for 10 years without a significant updating. However, during that period, Department of Education personnel began to apply an extrapolated calculation to the population groupings and square footage ranges that was to be the precursor to the shift to a per-student allocation.

As part of an overhaul of its capital grants for school construction and major maintenance program. The state legislature, in 1993 created a bond reimbursement and grant review committee to establish a grant application and ranking process. One of the significant components of this competitive grant process was to determine which schools had insufficient space. Introduced by the committee in 1994 and adopted in 1995 was a new space allocation guideline. Substantive provisions included:

- a continuously graduated allocation per student, seamless from 10 to 500 students,
- a single maximum “gsf” allocation vs. minimum/optimal/maximum
- a re-confirmation of adequacy for current educational delivery models.

The basis for the allocation came in two components, a base square footage amount and a supplemental square footage amount. Supplemental square footage accounted for space that responded to non-instructional building requirements such as restrooms and mechanical areas that took a proportionally greater amount of the total GSF as the student population housed decreased. At 500 students, supplemental space was projected to be 25% above the base allocation whereas at 10 students, this category grew to 35% above base allocation. In addition, base allocations, which held steady at 85sf/elementary student and 120sf/secondary student at populations greater than 250, also climbed as much as 100% for schools serving a population of just 10 students. In all, it was an elegant depiction of how space needs per student change with regard to size of population. Once the graphs were developed for each of the major school types (elementary, secondary and K-12) a mathematical expression was developed to capture an exact allocation per student.

It took four years of using the new guidelines before the staff at the Department of Education noted an anomaly in space computation that occurred in schools with around 300 students. This was due to the fact that every school was entitled to a unique allocation of space based on its projected population and it just took some time to encounter the flaw. Also a cause of considerable difficulty was establishing an appropriate method by which to count existing and new space. The department’s unique “net gsf” method of counting space which excluded exterior wall thickness and counted upper level spaces and covered areas at partial amounts, among other variables, was cumbersome. It even resulted in designers projecting to suspend HVAC units from roof structure and other questionable solutions in order to squeeze out additional gymnasium space.

As a result, action was taken in 2000, and formalized in 2001, adopting revisions to the space allocations to correct the anomaly and accomplish a no- net-gain/loss conversion to counting



gross square feet. Prior to this point the baseline allocation for elementary was 106.25sf/student and secondary was 150sf/student for schools larger than 500. Following the conversion to GSF, the numbers became 110sf/student and 157sf/student respectively.

Having established a rather detailed history of Alaska's work with space allocation guidelines. I'd like to close with some illustrations of our latest efforts to ensure the adequacy of our standards. Although the space guideline revisions formalized in 2001 appeared to increase space four square feet for elementary and seven square feet for secondary, those increases only accommodated the determination to count the complete gross footprint area of buildings versus a previous partial counting method. In practice, this meant that a test of space allocation adequacy had not occurred since 1995. Therefore in 2001, the department, with the assistance of the state chapter CEFPI, undertook to assess the adequacy of the current guidelines. We joined to conduct the review on two fronts: a technical requirements review and an educational requirements review.

The technical review was an analysis to ensure that the "purchasing power" of a SF of 1995 space had not diminished by 2002. It incorporated a comparison to recent school projects across the United States from various sources, an analysis of building service and code requirements that occurred within the period 1994 to 2001 and looked at evidence in recent Alaska schools that our net-to-gross conversion was indeed providing no net loss. A Tabulation of the results of the building service/code analyses is shown in the following table.

Conformed Analysis for Building/Code Increases

Building Increase	Uplift Factor	Avg. % GSF	Proposed % Increase GSF	Sf/student increase K-6	Sf/student increase 7-12
Mech. Ventilation	1.90	6.15%	2.77%	2.94sf	4.15sf
Mech. Boilers	1.15	1.50%	0.23%	0.24sf	0.35sf
Data Hub Rooms	1.50	0.15%	0.08%	0.09sf	0.12sf
Toilet Fixtures	1.10	2.00%	0.20%	0.21sf	0.30sf
Totals			3.28%	3.48sf	4.92sf

The educational adequacy review was an analysis to ensure that educational requirements (i.e., content standards for Alaska's students) could be achieved within the space allocated for schools. This proved to be significantly more challenging to codify than the technical requirements analysis. Our main tool for the analysis was a web-based questionnaire for school facility planners and users. We notified planners, A/Es, district project managers, superintendents, and facility directors for every state funded school project that made significant use of the space allocation guideline of the availability of the survey and received a respectable response. Questions asked included, "If you had to reduce the space for some area or program in the school due to the space guidelines, what was it and how much was the reduction? Did you



have to eliminate any functional areas completely?” All responses were collected via the on-line instrument into a database. We strove to format the questionnaire to yield discrete computational data (e.g., rooms, square footage, etc.) but also allowed open-ended “comments”. While the effort was worthwhile, little concrete data emerged regarding space and educational adequacy. In the end, it was agreed to move ahead with increases associated with technical concerns while continuing to collect evidence on educational adequacy issues.

The final recommendations to the state board of education and early development were presented in a joint briefing with CEFPI. The states per-student baseline allocations were revised to:

- 114sf/student elementary (+4sf)
- 165sf/student secondary (+8sf)
- inclusion of 6th grade as secondary space in middle schools

One final element of a balanced and effective space allocation guideline is a set of variances to handle unique conditions. Without these variances, application of the standards to schools built during times of no standards or substantially different standards would generate space scenarios that are overly bureaucratic in the worst sense of the word. With the last revisions to the per student allocation, the state also updated its standing variances and added an additional variance for over-sized core areas. Currently our variances accommodate three conditions: unique educational programs--these may accumulate to a 20% increase to the allowable space; building inefficiencies resulting from additions and renovations –these may increase the calculated GSF by 15%-new projects and 20%-existing schools; and oversized core areas already constructed or for which it would be cost effective to implement for the future.

For the state of Alaska, the ultimate purpose of our space allocation guideline is to provide adequate space while being fiscally responsible. As a reality check, we modeled some calculations of the potential fiscal impact on the most recent revision to Alaska’s guidelines. You’ll recall that at the base level the change was only 4sf for elementary and 8sf for secondary. When all attendance areas are considered, the amount of potential exposure for the state is approximately \$80 million in additional funding.

Allocations of space have proven to be an equitable way to consider allocation of resources for school construction in Alaska. While we’ve settled on several main issues in the space allocation debate that work for Alaska—a per-student allocation of gross square footage that varies by school population served—the state continues to analyze and advance the finer points of the process to accommodate the future change.

¹ South East Regional Resource Center (Jan 1986). *Education Facilities Space Guideline Analysis*.